

## **Manual Hydrofoil and Spar Truss Assembly**

**for**

### **Wind Powered Watercraft**

**ABSTRACT:** A simple, lightweight, manually-controlled device for stabilizing and increasing the performance of small, sail-assisted watercraft, containing a single moving part and comprising a curved spar or iako (1) joining a main hull and a single outrigger hull or ama, a tubular shaft (2) with a handle (7) at one end and an "L" shaped hydrofoil (5 and 6) at the other end. The tubular shaft (2) is joined to the iako (1) by two or more struts (3) that are fixed to the iako (1) at their upper ends and have machine screws (8) or sleeves (4) at their lower ends by means of which the tubular shaft (2) is permitted to rotate around its longitudinal axis and is prevented from moving horizontally in relation to the curved iako (1), thereby making the entire assembly a truss or girder that resists vertical distortion or flexion. The vertical portion of the foil (6) makes an obtuse angle of specified range with the submerged blade portion of the foil (5) so that a horizontal force vector in a windward direction is created by the foil when it moves through the water, regardless of the tack on which the watercraft is sailed. An accessory device for transporting either a single passenger or equipment, consisting of two fore-and-aft rails (9) the ends of which rest on, or snap onto, or are otherwise affixed to the iako (1) and a second iako abaft thereof, and a webbing or fabric sling (10) attached to and suspended between said fore-and-aft rails (9).